

US Fish and Wildlife Service | Problem Definition _part 2_

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One of the pitfalls in problem framing and the reason that we dwell on this so much is that often we have what's called frame blindness. We think we understand how a problem should be framed. We think we understand the context. But maybe we've got kind of tunnel vision. We're so used to thinking about it in a certain way that we can't really think about it in an objective way.

So we need to ask ourselves-- we don't have a lot of tools for knowing if this is occurring other than to challenge ourselves and at each instance to really ask whether we're framing things right. Are there other perspectives that aren't being considered?

Sometimes, I think it's useful to think about if we had other people in the room, other stakeholders perhaps, other NGOs, other agencies, the public, would they be asking different questions? Would they be interested in a different aspect of this problem?

Some other perspectives that aren't being considered. Are our constraints real or are they imaginary? Have we framed the problem so narrowly because of a perceived constraint that it's almost not solvable? Are we making false assumptions?

All of this-- I mean, it's challenging. It's challenging to know when we're doing this, when we've fallen into this kind of trap. But we need to constantly have the permission to ask ourselves, look, are we solving the right problem? Is our scope correct? Is this problem tractable? Are we asking the right questions? Because if we're not, then the rest of the decision analysis really doesn't matter.

So what all of this leads to is wanting to craft a problem statement. Now do you really need to stop and write down a problem statement? Well, I don't know. If you've done a good job about talking through the issues, maybe you do, maybe you don't.

But actually, we've found in practice that this is a really, really helpful stage. Often because people may in conversation say, yes, here's the trigger. Here's the decision maker. This is the problem that we're facing. This is the decision that we want to make. But until you write it down, you don't really realize that people thought they were talking about the same thing but weren't. So the idea of actually writing down a problem statement is important.

So how do you do that? What do you do in a problem statement? Again, I think of a problem statement of something that's maybe a paragraph, maybe a page long. And it's a succinct articulation of all the things that we've just been talking about over the last few minutes.

So we need to be explicit. Don't assume the problem's obvious. Clearly document what the problem and the decision is that you're wanting to talk about. Address all the perceived constraints and assumptions. Include who was the decision maker? What was the trigger? What action needs to be taken and when?

What are the constraints? What's the frequency and timing? What's the scope? Can we put this in a problem class? We only need to include the salient details. Maybe a brief background on the legal, regulatory, or political issues. Maybe a brief background on the ecological issues.

But what we're trying to do is succinctly put down on paper the nature of the problem. And in doing this - and actually we found that when groups sit down to do this, often this takes many drafts just to get comfortable on the problem statement before you've even begun any of the aspects of decision analysis. And that's usually time very well spent.

Finally, we need to think about revision of a problem statement. Revise as needed is the advice we've given in the notebook here. I've said earlier, defining the problem is often the most difficult step. It's very difficult to get it right the first time.

As we proceed in the decision analysis, insights are likely to arise that cause you to rethink the nature of the decision. It could be that you get all the way through a decision analysis and start to think about what the preferred alternative is and how you might implement it, and you realize, oh my goodness, there's some stakeholders that we didn't consider who will be very upset about this.

And that makes you realize that you didn't actually consider all of the elements at the beginning. And so, you have to have permission to go back and revise that as those insights arrive.

So the problem definition is likely to change as you proceed with development. In other words, there's this idea of ongoing construction that the insights about the problem aren't always evident to us right at the beginning. Those insights arise as we construct decision analysis.

And so, we recommend this idea of iterative prototyping as an approach to development of a decision

analysis. That what we do is we do a quick prototype. We do a problem statement. We work through the rest of the PRO-ACT sequence.

And then, we take a step back and say, are we in the right ballpark? That was a prototype. We're going to go back and do all those steps again in a little bit more detail. But that first loop through that PRO-ACT actually gives us a lot of insight about the problem framing.

And so, having this opportunity to revise as needed as these insights arise is important. So I guess another way of saying this is this PRO-ACT sequence is perhaps not linear. That it's a circular or a cyclical process, an iterative process, that allows us to constantly be rethinking what the nature of the problem is.

I'd like to walk you through a little example of a problem framing exercise that illustrates some of the points that I'm talking about, particularly the point about the need to really be able to rethink a problem statement as a result of insights that arise.

So this was an example of a problem that Mitch Eaton, a colleague of mine, was working on with some folks in a workshop. It was a small little workshop as part of one of our courses. And we had a biologist come. She was a state biologist, and she was responsible for wild turkey management in her state.

And she came with the following problem statement that was then subjected to a PRO-ACT analysis. So the original problem statement was, How to present more robust management recommendations to the Game Commission Board. And part of the problem that was associated here was she felt like often, she would make recommendations and they would not be accepted.

And so in this problem framing, this original problem framing, she saw the decision maker as herself. She's the biologist making the harvest recommendations. She saw the recommendation as the decision. She's the biologist making the recommendation, so therefore, she's the decision maker.

The trigger is that that recommendation must be made annually. She's required by the way things are structured in her agency to make that recommendation to the Game Commission Board, which then acts on it.

And so what she wanted to do, the action that she wanted to take, was somehow to make recommendations that were more likely to be accepted. If her decision is what t recommendation to

make, then how can she do a better job of making recommendations that are likely to be accepted?

Well, what's interesting is-- so the group that was working with her on this, led by Mitch, went through this process of trying to diagnosis this decision and really to analyze it. And they started to go through the PRO-ACT steps and everything like that.

And then they started to think, well, look, is this decision tractable? She's talking about making recommendations that she wants to be accepted by the Game Commission Board. But whether or not they're accepted by the game commission board might not have anything to do with what she's done. It might really be out of her control. The Board is likely making decisions based on other factors. Public values that they're taking into consideration that she wasn't taking into consideration perhaps.

So who really is the decision maker? Well, isn't it the Board of Commissioners? Isn't the Board of Commissioners the decision maker here?

So here is an example were-- I might be stating this too strongly-- but is this frame blindness? Did we have a problem with perspective, and assumptions, and perceived constraints here? When asking this question of, well, really who is the decision maker? Who is the person that makes, or the group that makes, an irrevocable allocation of resources?

Is a recommendation to the Game Commission Board an irrevocable allocation of resources? Well, this biologist spent her time doing it. So in that sense, yes, she can't get that time back. But the state hasn't committed to any course of action yet. Not until the Board of Commissioner acts.

So the real decision maker here is the Board of Commissioners. And that insight-- and it took a while. I mean, I think it took several hours of discussion for this group to really realize, wait a second, we're asking the wrong problem here.

And the insight comes out of saying, really, who is the decision maker? And so, what this group did was they thought then from this other perspective and realized that the real decision is how to set harvest levels for wild turkey that accomplish what perceived to be the multiple objectives of the decision maker. The objectives include public perception, recreational opportunities-- for instance, hunting-- as well as the long-term population viability, as well as the yield from the harvest.

There's multiple facets to this decision. And that's what the Game Commission Board was taking into

consideration. And so, if she made a recommendation that was built around harvest yield and long-term population viability, but wasn't taking into account the recreational opportunities, or issues about access, or issues about tradition of turkey hunting in this state, then maybe she wasn't really taking into account all the considerations that the true decision maker was.

And so, reframing this then as recognizing the decision maker as the Game Commission Board, the decision is the annual harvest regulations for wild turkeys, and that the context in which that is occurring includes multiple objectives that are important that reflect a lot of public views about the turkey hunting season in this particular state.

So again, an example that at each stage of the structured decision making process, we should be asking, are we capturing the true essence of the problem? The problem statement really drives the rest of the SDM process. And so we want to keep revisiting it and making sure that we're talking about the right thing.

At this stage, we've got an exercise for you to practice this. On page B-5 of your notebook, you have a draft problem statement about the Rolling Thunder National Wildlife Refuge vegetation management issue. This is not a real place, but it certainly has elements that I think all of you will recognize as typical of the kind of land management concerns that we have.

And so what I'd like you to do is, either yourself, individually, or if you're working in your office with a small group, or if you're taking this course alongside of some dispersed group, and you're meeting periodically to discuss elements of it, I'd like you to work together on this exercise.

And what I want you to do is look at this draft problem statement that we've written for you and try to figure out what's going on. And ask yourself, is it a good problem statement? Does it really capture the essence of this decision? Does it really frame things up well that's understandable, or does it not? Can you identify the elements of the decision?

Flip back to that list of concerns that I had talked about-- the trigger, the action, scope, and frequency-- and ask yourself whether all those things are captured in the problem statement. And then, what I'd like you to do is rewrite the problem statement. Make it so it's better, so that it conveys the kind of stuff that we want to have in a problem statement.

And so, I don't know how long you want to spend on this. Perhaps maybe it'll take you a half an hour of

reading, and thinking, and discussing, and redrafting to see if you can write a really good problem statement for this particular management setting. And after you've done that, stop the video soon and go ahead and do that exercise. And after you've done that, come back, and I'll have a little bit of discussion about how you might have approached that.

Welcome back. So hopefully, you've had time to work a little bit by yourself, or with a partner, or with a group, and look at that problem statement that concerned the Rolling Thunder National Wildlife Refuge. We're actually going to return to this example a couple times over the course of this course.

So if you've had a chance to look through it and perhaps draft one of your own, what I'd like to do is give you just a few of my thoughts about this. On the web, you can also call up. We've rewritten the problem statement for you as well. And you can look at that rewritten one in parallel with the one you've written, and to see if you captured the same kind of things.

There's no right answers here. But what I'm going to try to do is emphasize in this little discussion some of the points that I had made earlier in the lecture presentation. So when I read the problem statement you were given, I'm going to look at that now.

And here are some of the things that popped out at me. First sentence says, "In response to a petition for listing." Well, hey, there's the trigger right there. The reason that whoever it is, whoever is the decision maker here, is worried about something is because there was a new listing of some species, the skipper butterfly and the burying grass beetle. They weren't listed before. That kind of changed the context. That's the trigger for this decision.

OK, good. Well, maybe that can go, and that should be in the problem statement as the trigger. Some of the other things that jump out at me. This is happening at Rolling Thunder National Wildlife Refuge. So we know where it is.

Let's see, what did I just say? Maintaining viable grasslands is crucial. All right, there's one of your objectives there. There's an objective of maintaining viable grasslands. Cattle grazing is mentioned later on. So, there's another objective of cattle grazing. Presumably, these listed species are also an objective.

So I'm starting to get the feel that this is a multiple objective problem, right? That there's some concerns about how fire that's used to manage these grasslands affects grazing, but also affects these newly

listed species.

OK. So maybe just with those kind of clues, I'm starting to think that this is maybe a multiple objective trade-off problem. What else jumps out at me?

Well, let's see. The refuge is struggling to determine whether and how to continue using prescribed fire. OK, prescribed fire. That's an action that can be taken. Maybe that's one of the alternatives that they're thinking about.

But mowing is another possible vegetation management strategy. So maybe that's part of the dilemma here in the decision, is this choice between fire and mowing, or perhaps other ways of managing these grasslands. So maybe that's helping us see what the action is that's being considered.

Let's see. Cost. There's practical or cost effective are mentioned. Those are perhaps objective, so that in addition to grassland management, these listed species, cattle grazing, we're also concerned about the expense of all of this and the staff time that's required on the part of the refuge. So, part of the multiple objective things.

Now one of the interesting things when I look at this draft problem statement is to say, well, what's not there? Who's the decision maker? Is it clear in this context who the decision maker is? It doesn't say who the decision maker is.

Presumably, understanding how National Wildlife Refuges work, I guess my judgment would be here that the decision maker is the project leaders, the refuge manager. That that's the decision maker here. And then certainly, that they're going to take input from their staff.

And because there's cattle grazing here, that probably means that there's some stakeholders involved. They've leased refuge land to some private cattlemen that are grazing on this land. So there's some stakeholders that are involved as well.

So all that helps. The other question is when? And how often? When does this decision have to be made? How is that taking place? That's missing from this problem statement as I see it.

So if I flip back to the page B-4 and kind of look at the things that I wanted you to have in a problem statement. The decision maker. We talked about that. The trigger that's there. The action, we're starting

to get a sense for that.

Are there constraints? Not clear what constraints there are. I mean, there are some new constraints now that we've got the Endangered Species Act playing a role here. Frequency and timing. That wasn't clear in the problem statement. That's going to need to be clarified.

The scope. I think we're just talking about something that's at this refuge. There's no hint that this is tied to the management of lands outside the refuge or at other refuges.

Class or type of problem. What kind of problem do I think this is? Well, I think it's a multiple objective problem. We don't know whether it's plagued by uncertainty. That really wasn't clear in the information. Well, maybe it is. Maybe we're uncertain really about how mowing and prescribed fire work relative one to the other.

OK. So we can go and rewrite this. Now we've provided you with a redrafted problem statement that you can compare to the one that you wrote and see if you've got the same kind of elements. When you look at this redrafted one-- which I hope you'll call up. It's probably a separate PDF on the website associated with this module.

And this succinct version has six things highlighted in it. So let's talk about those. The first sentence really talks about what the decision is. OK, so the first sentence says "A revised program of vegetation treatment needs to be implemented for Rolling Thunder National Wildlife Refuge that achieves recovery goals for protected prairie endemic species." So that tells us the kind of action that needs to be taken.

We then talk about the trigger. Recently refuge conservation objectives expanded to include this newly listed species, et cetera. And this has sort of changed the nature of thinking about how to manage these things. That's the trigger for rethinking this problem.

Third, the new program will become part of a multispecies recovery plan. Now, we're starting to get into the legal and regulatory constraints here, and tying it into the context in which this is occurring. OK. So that's good. That's an important part of the problem statement.

Fourth, the crux of it, we really say who the decision maker is. The refuge manager must decide on a treatment program in consultation with the species recovery team. Then fifth, the decision timing and frequency. This was missing from before, right? The problem must be in place by the summer, and it'll

last for five years. Some of the treatments may restrict future management options for 10 years because of the infrastructure commitments and ecological effects.

And so we've gotten a sense here. Now you might have written something differently, because this is kind of a made-up problem, and so you may have interpreted that timing and frequency differently. But hopefully in a problem statement, you recognize we would want to see those kind of things.

And then finally, the scope of the problem that we're talking about here. While the vegetation management strategy technically only applies to grasslands and about half of this refuge for a five year program, the decision is considered critical for sustaining these endemic prairie species throughout their limited ranges.

Now this is interesting, because the scope while the refuge manager sees that he or she has a decision to make on their refuge recognizes that the decisions that he or she is making certainly results in conservation objectives taking place there for that species at that refuge. But also, there may be learning that occurs and management recommendations that occur there that can apply elsewhere.

There may be privately held lands that are nearby that would benefit from these same kind of considerations. And so recognizing that potential as part of the scope is important.

OK. So maybe we haven't got this perfect. But here's a focused problem statement that then the decision maker and the stakeholders can really look at and say, yes, OK, that's what we want to tackle. We want to figure out how to make that decision well. And then, they can proceed on to the subsequent steps.

This concludes Module B, the module on problem framing. But we'll have occasions throughout the rest of this course to refer back to this step of things as we go through the rest of the steps. The next module will be about determining objectives. That's the next step in our PRO-ACT sequence.

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